6 Math Unit 03: Ratios & Rates

Content Area: **Mathematics**
Course(s):
Time Period: **November**
Length: **22 days**
Status: **Published**

Unit Overview

This chapter begins with introductory skills associated with writing and representing ratios. Fractional notation is purposely avoided. Instead, the number a — b is referred to as the value of the ratio a : b. Once the concept of a ratio has been introduced, equivalent ratios can be used to solve a wide variety of problems.

Standards

MATH.6.RP.A.1	Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities.
MATH.6.RP.A.2	Understand the concept of a unit rate a/b associated with a ratio $a:b$ with $b \neq 0$, and use rate language in the context of a ratio relationship.
MATH.6.RP.A.3	Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations.
MATH.6.RP.A.3.a	Make tables of equivalent ratios relating quantities with whole number measurements, find missing values in the tables, and plot the pairs of values on the coordinate plane. Use tables to compare ratios.
MATH.6.RP.A.3.b	Solve unit rate problems including those involving unit pricing and constant speed.
MATH.6.RP.A.3.d	Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities.

Materials

Core Materials

- Big Ideas Mathematics
- 3.1 Ratios
- 3.2 Using Tape Diagrams
- 3.3 Using Ratio Tables
- 3.4 Graphing Ratio Relationships
- 3.5 Rates and Unit Rates
- 3.6 Converting Measures

Supplementary Materials

- ST Math
- Delta Math
- 3 Act Lessons
- Brainingcamp Manipulatives

- Nearpod Lessons
- Brainpop Resources
- Online Resources

Technology

CS.6-8.8.1.8.AP.4	Decompose problems and sub-problems into parts to facilitate the design, implementation, and review of programs.
CS.6-8.8.1.8.DA.1	Organize and transform data collected using computational tools to make it usable for a specific purpose.
CS.6-8.8.1.8.DA.5	Test, analyze, and refine computational models.

Assessment

Formative Assessment

- Teacher Observation
- Daily Quick Check
- Quizzes
- Exit Tickets

Summative Assessment

- Topic Tests
- Benchmark Tests

Alternative Assessment

- Performance Tasks & Projects

Accommodations & Modifications

Special Education

Differentiated Instruction			
Accommodate Based on Students Individual Needs: Strategies			
Time/General	**Processing**	**Comprehension**	**Recall**
• Extra time for assigned	• Extra response time	• Precise step-	• Teacher-

tasks • Adjust length of assignment • Timeline with due dates for reports and projects • Communication system between home and school • Provide lecture notes/outline	• Have students verbalize steps • Repeat, clarify, or reword directions • Mini-breaks between tasks • Provide a warning for transitions • Reading partners	by-step directions • Short manageable tasks • Brief and concrete directions • Provide immediate feedback • Small group instruction • Emphasize multi-sensory learning	made checklist • Use visual graphic organizers • Reference resources to promote independence • Visual and verbal reminders • Graphic organizers
Assistive Technology • Computer/whiteboard • Tape recorder • Spell-checker • Audio-taped books	**Tests/Quizzes/Grading** • Extended time • Study guides • Focused/chunked tests • Read directions aloud	**Behavior/Attention** • Consistent daily structured routine • Simple and clear classroom rules • Frequent feedback	**Organization** • Individual daily planner • Display a written agenda • Note-taking assistance • Color code materials

504

- In class/pull out support with special ed teacher Additional time during intervention time
- Preferred seating
- Questions read aloud
- Extended time for completing tasks Graphic organizers
- Vocabulary support Mnemonic devices
- Songs/videos to reinforce concepts Limit number of questions
- Scribe Manipulatives Calculators Reteach pages Leveled homework
- Lesson intervention activities
- Math Diagnosis & Intervention System Another look homework video
- Practice buddy

ELL

- Translation device/dictionary
- In class/pull out support with ESL teacher

- Preferred seating
- Questions read aloud
- Extended time for completing tasks
- Graphic organizers
- Vocabulary support
- Mnemonic devices
- Songs/videos to reinforce concepts
- Manipulatives
- Math Diagnosis & Intervention System

At-risk of Failure

- Additional time during intervention time
- Questions read aloud
- Graphic organizers
- Vocabulary support
- Mnemonic devices
- Songs/videos to reinforce concepts
- Manipulatives
- Calculators
- Reteach pages
- Leveled homework
- Lesson intervention activities
- Math Diagnosis & Intervention System
- Another look homework video
- Practice buddy

Gifted & Talented

- Independent projects
- Enrichment pages
- Online games
- Leveled Homework
- Extension Activities
- Today's Challenge

Interdisciplinary Connections

Topic 3 STEM Project - Design a Bridge: In this project, students will begin the process of designing a bridge in their community. They learn about the engineering design process as they consider the number, types, and weights of vehicles that will utilize the bridge.

Science Connection - Students engage in the first steps of the engineering design process by taking into account the constraints of the problem, a maximum weight limit of 100,000 pounds. They also consider their community, the natural environment where their bridge may be constructed.

ELA.RL.CR.6.1	Cite textual evidence and make relevant connections to support analysis of what a literary text says explicitly as well as inferences drawn from the text.
SCI.MS-ETS1-1	Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions.

Career Readiness, Life Literacies & Key Skills

PFL.9.1.8.EG.1	Explain how taxes affect disposable income and the difference between net and gross income.
PFL.9.1.8.PB.2	Explain how different circumstances can affect one's personal budget.
WRK.9.2.8.CAP.3	Explain how career choices, educational choices, skills, economic conditions, and personal behavior affect income.
TECH.9.4.8.TL.1	Construct a spreadsheet in order to analyze multiple data sets, identify relationships, and facilitate data-based decision-making.
TECH.9.4.8.TL.2	Gather data and digitally represent information to communicate a real-world problem (e.g., MS-ESS3-4, 6.1.8.EconET.1, 6.1.8.CivicsPR.4).
TECH.9.4.8.GCA.2	Demonstrate openness to diverse ideas and perspectives through active discussions to achieve a group goal.
TECH.9.4.8.IML.3	Create a digital visualization that effectively communicates a data set using formatting techniques such as form, position, size, color, movement, and spatial grouping (e.g., 6.SP.B.4, 7.SP.B.8b).
TECH.9.4.8.IML.4	Ask insightful questions to organize different types of data and create meaningful visualizations.

Career Ready Practices

- CRP1. Act as a responsible and contributing citizen and employee.
- CRP2. Apply appropriate academic and technical skills.
- CRP4. Communicate clearly and effectively and with reason.
- CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.
- CRP12. Work productively in teams while using cultural global competence.